

=> s cytokinin#

L3 10995 CYTOKININ#

=> s l3 (5a) (receptor#)

L4 141 L3 (5A) (RECEPTOR#)

=> s l4 (p) (assay or method or analyz? or agonist#)

L5 18 L4 (P) (ASSAY OR METHOD OR ANALYZ? OR AGONIST#)

=> d l5 l-18 bib ab

L5 ANSWER 1 OF 18 MEDLINE

AN 1999016587 MEDLINE

DN 99016587 PubMed ID: 9800205

TI Plant hormone perception and action: a role for G-protein signal transduction?.

AU Hooley R

CS Institute of Arable Crops Research (IACR), Department of Agricultural

Sciences, University of Bristol, UK.. richard.hooley@bbsrc.ac.uk

SO PHILOSOPHICAL TRANSACTIONS OF THE ROYAL

SOCIETY OF LONDON. SERIES B:

BIOLOGICAL SCIENCES, (1998 Sep 29) 353 (1374) 1425-30.

Ref: 55

Journal code: 7503623. ISSN: 0962-8436.

CY ENGLAND: United Kingdom

DT Journal; Article; (JOURNAL ARTICLE)

General Review; (REVIEW)

(REVIEW, TUTORIAL)

LA English

FS Priority Journals; Space Life Sciences

EM 199901

ED Entered STN: 19990202

Last Updated on STN: 20000303

Entered Medline: 19990119

AB Plants perceive and respond to a profusion of environmental and endogenous

signals that influence their growth and development. The

G-protein signalling pathway is a mechanism for transducing extracellular signals

that is highly conserved in a range of eukaryotes and prokaryotes.

Evidence for the existence of G-protein signalling pathways in higher

plants is reviewed, and their potential involvement in plant hormone

signal transduction evaluated. A range of biochemical and molecular

studies have identified potential components of G-protein signalling in

plants, most notably a homologue of the G-protein coupled receptor

superfamily (GCR1) and the G alpha and G beta subunits of heterotrimeric

G-proteins. G-protein ***agonists*** and antagonists are known to

influence a variety of signalling events in plants and have been used to

implicate heterotrimeric G-proteins in gibberellin and possibly auxin

signalling. Antisense suppression of GCR1 in *Arabidopsis* leads to a

phenotype which supports a role for this ***receptor*** in ***cytokinin*** signalling. These observations suggest that

higher

plants have at least some of the components of G-protein signalling

pathways and that these might be involved in the action of certain plant

hormones.

L5 ANSWER 2 OF 18 MEDLINE

AN 1998171319 MEDLINE

DN 98171319 PubMed ID: 9512365

TI A new family of cytokinin receptors from *Cereales*.

AU Kulaeva O N; Zagranichnaya T K; Brovko F A; Karavaiko N N; Selivankina S

Y; Zemlyachenko Y V; Hall M; Lipkin V M; Boziev K M

CS Timiryazev Institute of Plant Physiology, Russian Academy of Sciences,

Moscow.. vladimir@ad.planphys.msk.ru

SO FEBS LETTERS, (1998 Feb 20) 423 (2) 239-42.

Journal code: 0155157. ISSN: 0014-5793.

CY Netherlands

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199804

ED Entered STN: 19980410

Last Updated on STN: 19980410

Entered Medline: 19980402

AB The highly specific recognition of a natural cytokinin, trans-zeatin, by

cytokinin-binding protein (CBP) of 67 kDa from barley leaves was detected

with an ***assay*** developed on the basis of cytokinin competition in

ELISA with anti-idiotype antibodies (raised against antibodies to zeatin)

for complex formation with CBP. Monoclonal antibodies (mAbs) raised

against 70 kDa CBP from etiolated maize seedlings cross-reacted with

barley 67 kDa CBP and prevented barley CBP and trans-zeatin induced

activation of transcription elongation directed by RNA polymerase I

associated with barley chromatin. One mAb (Z-6) had an agonistic effect.

Maize CBP replaced barley CBP in activation of RNA synthesis with

cytokinin in the barley transcription system. Hence, a new family of

cytokinin ***receptors*** with common functions and immunodeterminants including maize and barley CBPs was found.

L5 ANSWER 3 OF 18 MEDLINE

AN 96098194 MEDLINE

DN 96098194 PubMed ID: 8562647

TI [Interaction of cytokines with cellular receptors].

Vzaimodeistviye tsitokinov s kletochnymi reseptorami.

AU Danilkovich A V; Dzantiev B B

SO BIORHIMIIA, (1995 Sep) 60 (9) 1382-95. Ref: 102

Journal code: 0372667. ISSN: 0320-9725.

CY RUSSIA: Russian Federation

DT Journal; Article; (JOURNAL ARTICLE)

General Review; (REVIEW)

(REVIEW, TUTORIAL)

LA Russian

FS Priority Journals

EM 199603

ED Entered STN: 19960315

Last Updated on STN: 19960315

Entered Medline: 19960301

AB The cytokinin family includes biologically active polypeptide molecules secreted by haemopoietic and immunocompetent cells which control cell proliferation and differentiation. ***Cytokinin*** interactions with specific ***receptors*** of the cell surface results in oligomerization of these receptors, i.e. in association of two or more membrane molecules. It is becoming obvious that oligomerization of receptors is an indispensable stage in the manifestation by cytokinins of their biological activity. In this context, studies of regularities of ***cytokinin*** ***receptor*** interactions resulting in ***receptor*** oligomerization is important for both elucidation of molecular mechanisms underlying kinin action and construction of compounds having the properties of ***agonists*** (or antagonists) of ***cytokinin*** -induced oligomerization of membrane ***receptors***. A conclusion is drawn about the important role of polyvalent ***cytokinin*** interactions with cell ***receptors*** in the initiation of oligomerization and subsequent formation of functionally active receptor complex.

L5 ANSWER 4 OF 18 MEDLINE
 AN 85185467 MEDLINE
 DN 85185467 PubMed ID: 3989817
 T1 Quantitative structure-activity relationships in cytokinin agonistic and antagonistic pyrido[2,3-d]pyrimidine derivatives: insights into receptor topology.
 AU Iwamura H; Murakami S; Koshimizu K; Matsubara S
 SO JOURNAL OF MEDICINAL CHEMISTRY, (1985 May) 28 (5) 577-83.
 Journal code: 9716531. ISSN: 0022-2623.
 CY United States
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 198506
 ED Entered STN: 19900320
 Last Updated on STN: 19900320
 Entered Medline: 19850603
 AB 2-(Methylthio)pyrido[2,3-d]pyrimidines having various alkylamino and anilino substituents at the 4-position were prepared and tested for their cytokinin agonistic and antagonistic activities by the tobacco callus bioassay. The alkyl series of compounds showed anticytokinin activity, whereas the anilino derivatives exhibited both cytokinin and anticytokinin activities depending on the structure and position of the benzene substituents. Quantitative structure-activity analyses were carried out for each class and for the combined set of compounds with use of physicochemical parameters and regression analysis, indicating that the quality of activity, agonistic or antagonistic, as well as the extent of activity, is significantly affected by the steric features of the molecule. On the basis of the present results and previous quantitative analyses on cytokinins and other classes of anticytokinins, a dimensional

map for the ***cytokinin*** ***receptor*** site can be drawn, which can serve as the basis for the design of novel ***agonists*** and antagonists.

L5 ANSWER 5 OF 18 MEDLINE
 AN 83216014 MEDLINE
 DN 83216014 PubMed ID: 6854586
 T1 Quantitative aspects of the ***receptor*** binding of ***cytokinin*** ***agonists*** and antagonists.
 AU Iwamura H; Masuda N; Koshimizu K; Matsubara S
 SO JOURNAL OF MEDICINAL CHEMISTRY, (1983 Jun) 26 (6) 838-44.
 Journal code: 9716531. ISSN: 0022-2623.
 CY United States
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 198307
 ED Entered STN: 19900319
 Last Updated on STN: 19900319
 Entered Medline: 19830708
 AB Congeneric 4-anilino- and 4-(alkylamino)-2-methylpyrido[2,3-d]pyrimidines showed cytokinin and anticytokinin activities, depending on the structure of their 4-substituents, and the antagonistic nature of the latter was established kinetically. The effect of the substituent on these activities was analyzed quantitatively by using physicochemical parameters and regression analysis to give a single, common equation for both the agonists and antagonists. The results indicated that the maximum width of the N4 substituents is an important factor both for binding to the receptor, thus the extent of activity, and for the quality of activity, agonistic or antagonistic. The electron-withdrawing effect and hydrophobicity of the substituents further enhance binding and, thus, activity, irrespective of the quality of the activity. These results coincide with and/or provide evidence for the hypothesis that in hormonal action, agonist binding causes a conformational change of an otherwise inactive receptor to the active form and that antagonists are species that bind similarly to the receptor but do not cause the effective conformational change.

L5 ANSWER 6 OF 18 CAPLUS COPYRIGHT 2002 ACS
 AN 2001:490636 CAPLUS
 DN 135:222727
 T1 Chemical modification of components of the cotton cytokinin hormone-receptor complex for creation of pesticide biosensors
 AU Uzbekov, V. V.; Veshkurova, O. N.; Sagdiev, N. Zh.; Salikhov, Sh. I.
 CS A. S. Sadykov Institute of Bioorganic Chemistry, Academy of Sciences of the Republic of Uzbekistan, Tashkent, 700143, Uzbekistan
 SO Chemistry of Natural Compounds (Translation of Khimiya Prirody)
 Soedinenii) (2001), Volume Date 2000, 36(6), 611-615
 CODEN: CHNCAB; ISSN: 0009-3130
 PB Consultants Bureau
 DT Journal
 LA English
 AB Highly specific polyclonal antibodies to the cotton ***cytokinin*** ***receptor*** were isolated and labeled with fluorescein isothiocyanate

to give a conjugate of the natural phytohormone zeatin riboside with bovine serum albumin. The possible use of cotton ***cytokinin*** ***receptor*** as a biosensor to ***analyze*** pesticides, phenylurea derivs., was investigated.

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 7 OF 18 CAPLUS COPYRIGHT 2002 ACS
 AN 2000:736672 CAPLUS
 DN 134:219648
 TI Cytokinin receptor
 AU Kobayashi, Koh
 CS Laboratory of Life Science, Tokyo Gakugei University, Tokyo, Koganei-shi, 184-8501, Japan
 SO Shokubutsu no Kagaku Chosetsu (2000), 35(1), 43-55
 CODEN: SKACD7; ISSN: 0388-9130
 PB Shokubutsu Kagaku Chosetsu Gakkai
 DT Journal; General Review
 LA Japanese
 AB A review with 65 refs. on cytokinin-binding proteins (CBPs), ***method*** of binding of cytokinins and CBPs, new tests for ***cytokinin*** ***receptors***, discovery of new CBPs, ***cytokinin*** ***receptors*** and signal transduction, and future prospects for ***cytokinin*** ***receptors***.

L5 ANSWER 8 OF 18 CAPLUS COPYRIGHT 2002 ACS
 AN 2000:212104 CAPLUS
 DN 133:130445
 TI Isolation of cDNA encoding cytokinin-binding proteins in maize
 AU Laman, A. G.; Shepelyakovskaya, A. O.; Bulgakova, E. V.; Shavkunov, A. S.; Kurdyukov, S. G.; Brovko, F. A.; Lipkin, V. M.; Kulaea, O. N.
 CS Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry, Russian Academy of Sciences, Pushchino, 142292, Russia
 SO Russian Journal of Plant Physiology (Translation of Fiziologiya Rastenii (Moscow)) (2000), 47(1), 76-83
 CODEN: RJPPE2; ISSN: 1021-4437
 PB MAIK Nauka/Interperiodica Publishing
 DT Journal
 LA English
 AB Two approaches were used to enrich RNA isolated from etiolated maize (*Zea mays* L.) seedlings with mRNAs for the ***receptor*** ***cytokinin*** -binding protein CBP70. The first ***method*** was immunoaffinity chromatog. of polysomes using immobilized monoclonal antibodies against CBP70, and the second one was polysome affinity chromatog. on immobilized zeatin riboside. RNA obtained by both methods and enriched with sequences encoding the ***cytokinin*** ***receptor*** was used for constructing cDNA libraries in the lambda.MOSElox expression vector in the *Escherichia coli* cells, strain B834(DE3). Clones were screened for CBP70 synthesis using monoclonal antibodies against this protein. Among 15,000 clones from the cDNA library constructed by the first ***method*** and 5000 clones from the cDNA library obtained by the second ***method***, 38 and 12 clones, resp., cross-reacted with

antibodies against CBP70. Immunoblotting of polypeptides from lysates of these pos. clones detected the polypeptides close to CBP70 in their mol wts. Thus, cDNAs corresponding to mRNAs for the cytokinin-binding protein were obtained by two independent methods. The developed exptl. approaches can be recommended for enriching the total RNA fraction with infrequent mRNAs.

RE.CNT 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 9 OF 18 CAPLUS COPYRIGHT 2002 ACS
 AN 1999:470779 CAPLUS
 DN 131:226070
 TI A role for G proteins in plant hormone signalling?
 AU Hooley, Richard
 CS Institute of Arable Crops Research (IACR)-Long Ashton Research Station, Department of Agricultural Sciences, University of Bristol, Bristol, BS41 9AF, UK
 SO Plant Physiology and Biochemistry (Paris) (1999), 37(5), 393-402
 CODEN: PPBIEX; ISSN: 0981-9428
 PB Editions Scientifiques et Medicales Elsevier
 DT Journal; General Review
 LA English
 AB A review with 50 refs. The G protein signalling pathway is one of the most highly conserved mechanisms that enables cells to sense and respond to changes in their environment. Essential components of this are cell surface G protein-coupled receptors (GPCRs) that perceive extracellular ligands, and heterotrimeric G proteins (G proteins) that transduce information from activated GPCRs to down-stream effectors such as enzymes or ion channels. It is now clear from a range of biochem. and mol. studies that some potential G protein signalling components exist in plants. The best examples of these are the seven transmembrane receptor homolog GCR1 and the G.alpha. (GPA1) and G.beta. (G.beta.1) subunit homologues of heterotrimeric G proteins. G protein ***agonists*** and antagonists are known to influence a variety of signalling events in plants and have been used to implicate G proteins in a range of signalling pathways that include the plant hormones gibberellin and auxin. Furthermore, antisense suppression of GCR1 expression in *Arabidopsis* leads to a phenotype that supports a role for this ***receptor*** in ***cytokinin*** signalling. This review considers the current evidence for and against functional G protein signalling pathways in higher plants and questions whether or not these might be involved in the action of certain plant hormones.

RE.CNT 50 THERE ARE 50 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 10 OF 18 CAPLUS COPYRIGHT 2002 ACS

AN 1998:705854 CAPLUS
 DN 130:78662
 TI Plant hormone perception and action: a role for G-protein signal transduction?
 AU Hooley, Richard
 CS Institute of Arable Crops Research (IACR)-Long Ashton Research Station,
 University of Bristol, Long Ashton, Bristol, BS41 9AF, UK
 SO Philosophical Transactions of the Royal Society of London, Series B:
 Biological Sciences (1998), 353(1374), 1425-1430
 CODEN: PTRBAE; ISSN: 0962-8436
 PB Royal Society
 DT Journal; General Review
 LA English
 AB A review with 55 refs. Plants perceive and respond to a profusion of environmental and endogenous signals that influence their growth and development. The G-protein signalling pathway is a mechanism for transducing extracellular signals that is highly conserved in a range of eukaryotes and prokaryotes. Evidence for the existence of G-protein signalling pathways in higher plants is reviewed, and their potential involvement in plant hormone signal transduction evaluated. A range of biochem. and mol. studies have identified potential components of G-protein signalling in plants, most notably a homolog of the G-protein coupled receptor superfamily (GCR1) and the G.alpha. and G.beta. subunits of heterotrimeric G-proteins. G-protein ***agonists*** and antagonists are known to influence a variety of signalling events in plants and have been used to implicate heterotrimeric G-proteins in gibberellin and possibly auxin signalling. Antisense suppression of GCR1 in *Arabidopsis* leads to a phenotype which supports a role for this ***receptor*** in ***cytokinin*** signalling. These observations suggest that higher plants have at least some of the components of G-protein signalling pathways and that these might be involved in the action of certain plant hormones.
 RE.CNT 55 THERE ARE 55 CITED REFERENCES
 AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 11 OF 18 CAPLUS COPYRIGHT 2002 ACS
 AN 1998:121306 CAPLUS
 DN 128:241775
 TI A new family of cytokinin receptors from Cereales
 AU Kulaeva, O. N.; Zagranichnaya, T. K.; Brovko, F. A.; Karavaiko, N. N.; Selivankina, S. Yu.; Zemlyachenko, Ya. V.; Hall, M.; Lipkin, V. M.; Boziev, Kh. M.
 CS Botanicheskaya 35, Timiryazev Institute of Plant Physiology, Russian Academy of Sciences, Moscow, 127276, Russia
 SO FEBS Letters (1998), 423(2), 239-242
 CODEN: FEBLAL; ISSN: 0014-5793
 PB Elsevier Science B.V.
 DT Journal
 LA English
 AB The highly specific recognition of a natural cytokinin, trans-zeatin, by

cytokinin-binding protein (CBP) of 67 kDa from barley leaves was detected with an ***assay*** developed on the basis of cytokinin competition in ELISA with anti-idiotype antibodies (raised against antibodies to zeatin) for complex formation with CBP. Monoclonal antibodies (mAbs) raised against 70 kDa CBP from etiolated maize seedlings cross-reacted with barley 67 kDa CBP and prevented barley CBP and trans-zeatin induced activation of transcription elongation directed by RNA polymerase I assocd. with barley chromatin. One mAb (Z-6) had an agonistic effect. Maize CBP replaced barley CBP in activation of RNA synthesis with cytokinin in the barley transcription system. Hence, a new family of ***cytokinin*** ***receptors*** with common functions and immunodeterminants including maize and barley CBPs was found.

L5 ANSWER 12 OF 18 CAPLUS COPYRIGHT 2002 ACS
 AN 1994:102063 CAPLUS
 DN 120:102063
 TI Immuno-analyses of zeatin metabolic enzymes of *Phaseolus*
 AU Mok, D. W. S.; Mok, M. C.; Martin, R. C.; Bassil, N.; Shaw, G.
 CS Cent. Gene Res. Biotechnol., Oregon State Univ., Corvallis, OR, 97331, USA
 SO Physiol. Biochem. Cytokinins Plants, Symp. (1992), Meeting Date 1990,
 17-23. Editor(s): Kaminek, Miroslav; Mok, David W. S.; Zazimalova, Eva.
 Publisher: SPB Acad. Publ., The Hague, Neth.
 CODEN: 59KXA9
 DT Conference
 LA English
 AB Systematic analyses of zeatin metab. in *Phaseolus* embryos have led to the detection of qual. differences between species and the identification of O-xylosyl derivs., a group of new metabolites in *Phaseolus* species. In addn., specific enzymes responsible for the formation of different O-glycosyl derivs. have been isolated. A monoclonal antibody to the zeatin O-glycosyltransferases was generated which will facilitate the isolation of genes coding for these enzymes. More importantly, as the enzymes are zeatin-specific, they may be utilized to generate monoclonal antibodies recognizing zeatin binding site(s) which could be useful in the study of ***cytokinin*** ***receptors***. The amino acid and gene sequences of such enzymes may assist the identification of consensus sequences of enzymes involved in cytokinin metab. As these enzymes are organ specific and species variable (but immunol. crossreactive), they should be valuable for ***analyzing*** the developmental controls and genetic divergence of zeatin metab.

L5 ANSWER 13 OF 18 CAPLUS COPYRIGHT 2002 ACS
 AN 1993:666633 CAPLUS

DN 119:266633
TI Identification of cytokinin receptors by means of structure-activity responses
AU Corse, J.; Pacovsky, R. S.; Brandon, D. I.; McKeon, T. A.
CS West. Reg. Res. Cent., Agric. Res. Serv., Albany, CA, 94710, USA
SO Physiol. Biochem. Cytokinins Plants, Symp. (1992), Meeting Date 1990,
211-14. Editor(s): Kaminek, Miroslav; Mok, David W. S.; Zazimalova, Eva.
Publisher: SPB Acad. Publ., The Hague, Neth.
CODEN: 59KXA9
DT Conference
LA English
AB Activities of R- (I) and S-N-6-(alpha-phenyl-alpha-methyl)methyladenines and R- (II) and S-N-6-(alpha-1-naphthyl-alpha-methyl)methyladenines were examd. in a soybean callus ***assay***.
While structure-activity responses can distinguish ***cytokinin*** ***receptors*** (which are necessary for physiol. action) from inactive binding proteins, the studies give little insight into explicit effect of stereochem. differences. The orientations of the groups around the optically active carbon atoms in I and II are similar, yet the relative activities of their enantiomers are opposite.

L5 ANSWER 14 OF 18 CAPLUS COPYRIGHT 2002 ACS
AN 1993:644827 CAPLUS
DN 119:244827
TI Comparison of the sensitivity and reliability of cytokinin-binding assays
using highly purified soluble binding protein
AU Kaminek, M.; Fox, J. E.
CS ARCO Plant Cell Res. Inst., Dublin, CA, 94568, USA
SO Physiol. Biochem. Cytokinins Plants, Symp. (1992), Meeting Date 1990,
461-7. Editor(s): Kaminek, Miroslav; Mok, David W. S.; Zazimalova, Eva.
Publisher: SPB Acad. Publ., The Hague, Neth.
CODEN: 59KXA9
DT Conference
LA English
AB Ultrafiltration and equil. dialysis cytokinin-binding assays gave the most reliable results. The advantage of the former method is its speed, which allows the assay of less stable ligands and binding proteins. Also, it does not require cytokinins of very high specific radioactivity as compared with equil. dialysis. Results obtained by using the ammonium sulfate pptn. binding assay are affected by many factors which are difficult to control, esp. at low CBF-1 concns., and thus may give false data.

L5 ANSWER 15 OF 18 CAPLUS COPYRIGHT 2002 ACS
AN 1989:52851 CAPLUS
DN 110:52851
TI Development of s-triazine anticytokinins and their quantitative structure-activity relationship
AU Shimizu, Ryo; Iwamura, Hajime; Matsubara, Satoshi; Fujita, Toshio
CS Fac. Agric., Kyoto Univ., Kyoto, 606, Japan
SO J. Agric. Food Chem. (1989), 37(1), 236-40
CODEN: JAFCAU; ISSN: 0021-8561

DT Journal
LA English
AB A new, nonadenylate series of anticytokinins, N2-substituted 2-amino-4-chloro-6-(ethylamino)-s-triazines, has been developed. The activity in terms of the I50 value of the most potent members was (0.3-0.5) times 10-6M when examd. by the tobacco (Nicotiana tabacum) callus ***assay*** in the presence of 0.05 times 10-6 M kinetin. The design of the mol. was made on the basis of insight into the active structure obtained from a ***cytokinin*** ***receptor*** map drawn previously. Quant. anal. of their structure-activity relationship showed that the mode of their binding to the receptor was in important ways the same as for previously known anticytokinins, the structure of which resembles the adenylate cytokinins.

L5 ANSWER 16 OF 18 CAPLUS COPYRIGHT 2002 ACS
AN 1983:193273 CAPLUS
DN 98:193273
TI Quantitative aspects of the ***receptor*** binding of ***cytokinin*** ***agonists*** and antagonists
AU Iwamura, Hajime; Masuda, Noboru; Koshimizu, Koichi; Matsubara, Satoshi
CS Fac. Agric., Kyoto Univ., Kyoto, 606, Japan
SO J. Med. Chem. (1983), 26(6), 838-44
CODEN: JMCMAR; ISSN: 0022-2623
DT Journal
LA English
AB Congeneric 2-methylpyrrolo[2,3-d]pyrimidines I, (R = anilino- or alkylamino) showed cytokinin and anticytokinin activities, depending on the structure of their 4-substituents, and the antagonistic nature of the latter was established kinetically. The effect of the substituent on these activities was analyzed quant. by using physicochem. parameters and regression anal. to give a single, common equation for both the agonist and antagonist. The results indicated that the max. width of the N4 substituents is an important factor both for binding to the receptor, thus the extent of activity, and for the quality of activity, agonistic or antagonistic. The electron-withdrawing effect and hydrophobicity of the substituents further enhance binding and, thus, activity, irresp. of the quality of the activity. These results coincide with and/or provide evidence for the hypothesis that in hormonal action, agonist binding causes a conformational change of an otherwise inactive receptor to the active form and that antagonists are species that bind similarly to the receptor but do not cause the effective conformational change.

L5 ANSWER 17 OF 18 CAPLUS COPYRIGHT 2002 ACS
AN 1981:617730 CAPLUS
DN 95:217730
TI Uptake of [14C]-8-azido-N6-benzyladenine, a radioactive photosensitive cytokinin, by the cells of the moss *Funaria hygrometrica* L
AU Miassod, R.
CS Lab. Biochim. Veg., Univ. Aix-Marseille, Marseille, 13288/2,

Fr.
SO Metab. Mol. Act. Cytokinins, Proc. Int. Colloq. (1981), Meeting Date 1980,

162-71. Editor(s): Guern, Jean; Paud-Lenoel, Claude. Publisher: Springer, Berlin, Fed. Rep. Ger.

CODEN: 46QMA8

DT Conference

LA English

AB [14C]-8-azido-N6-benzyladenine (I) was taken up continuously by F.

hygrometrica protonemata over a 40-h incubation period.

p-Bromo-N6-benzyladenine (II) and 8-azido-N6-benzyl-8-(1-ethoxyethyl)adenine (III) stimulated I uptake. In the cytokinin moss

assay, III was inactive and II displayed weak activity only at

high concn., whereas protonemata formed gametophyte buds in response to I

with or without II and III. Autoradiog. studies showed that I was concd.

in the 3 terminal cells of caulinema filaments after 16 h but was present

in 6-7 terminal cells after 26-36 h of incubation of moss

protonemata.

Autoradiograms probably show I complexes with high affinity sites in

cytokinin-target cells as well as with sites unrelated to hormone effect

present in all cells, esp. actively dividing ones. In protonemata incubated with I and III, Ag grains accumulated only in caulinema cells

5-7; thus III seems to compete efficiently for biol. meaningless sites.

II seemed to be inefficient in removing I from nonbiol. sites.

Thus, I

seems to be useful as a ***cytokinin*** - ***receptor*** probe

provided its interaction with other cellular components is considered.

L5 ANSWER 18 OF 18 CAPLUS COPYRIGHT 2002 ACS

AN 1981:12425 CAPLUS

DN 94:12425

TI Interaction of a radiolabeled cytokinin photoaffinity probe with a receptor protein

AU Keim, Paul; Fox, J. Eugene

CS Dep. Biochem., Univ. Kansas, Lawrence, KS, 66045, USA

SO Biochem. Biophys. Res. Commun. (1980), 96(3), 1325-34

CODEN: BBRCA9; ISSN: 0006-291X

DT Journal

LA English

AB A photoreactive analog of the cytokinin 6-benzylaminopurine was prep'd. by

the ***method*** of J. B. Theiler et. al. (1976) modified so as to

include a radioactive atom in the final product, [methylene-14C] 2-azido-6-benzylaminopurine. The affinity of this doubly labeled cytokinin probe for a previously described ***cytokinin***

receptor protein (Fox, J. E.; Erion, J. L., 1975, 1977) is

very

nearly the same as for the parent cytokinin. The cytokinin probe

was

covalently incorporated into the receptor protein by irradn. with UV

light, and its presence was quant. established by assaying for nondialyzable 14C. The labeled protein was subjected to

SDS-polyacrylamide gel electrophoresis and the subunits assayed for

radioactivity by fluorog. Each of the 4 subunits of the receptor protein

was labeled with 14C to some extent. Apparently all 4 subunits of

the

protein either actively participate in the formation of the cytokinin binding site or exist in close proximity to it.